



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

tel

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,834	12/08/2003	Nick Kuo	JCLA11759	5204
23900	7590	11/18/2005	EXAMINER	
J C PATENTS, INC. 4 VENTURE, SUITE 250 IRVINE, CA 92618			ANDUJAR, LEONARDO	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/730,834

Applicant(s)

KUO ET AL.

Examiner

Leonardo Andújar

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 12, 14 and 22 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-45 is/are allowed.
- 6) ☒ Claim(s) 1, 4 and 5 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 6-11, 13, 15-21 and 24-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of species 4 (figs. 1d and 2d) in the reply filed on 9/07/2005 is acknowledged.

***Claim Rejections - 35 USC § 103***

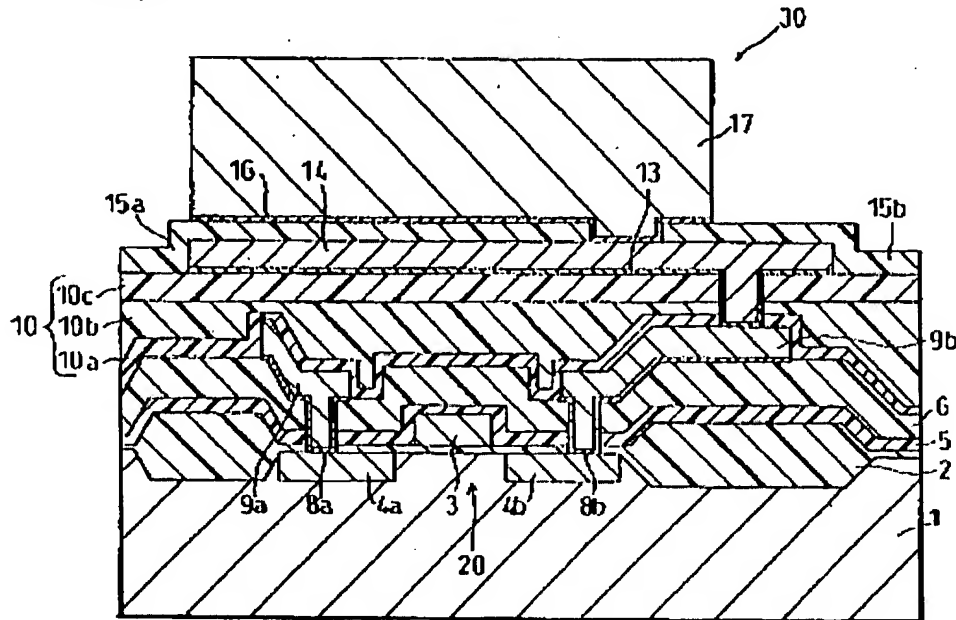
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyosawa et al. (US 6,864,562) in view of Kim (US 5,854,513).
4. Regarding claim 1, Toyosawa (e.g. fig. 8) teaches a chip structure, comprising: a semiconductor substrate 1 having a plurality of electronic devices 20 positioned on or in a surface layer of the semiconductor substrate; a fine-line interconnection scheme comprising: a plurality of dielectric layers (2, 5, 6, 1010, 15) over the semiconductor substrate, the dielectric layers having a plurality of via holes; and a plurality of circuit layers (9) each on one of the dielectric layers, wherein the circuit layers are electrically connected to each other through the via holes and are electrically connected to the electronic devices 20; a passivation layer 10b over the fine-line interconnection scheme, wherein the passivation layer comprises at least an opening exposing a portion of the most top circuit layer 9b; a post-passivation scheme 15b over the passivation layer

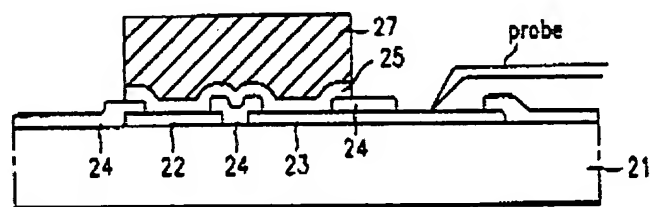
and electrically connected to the circuit layers, wherein the post-passivation scheme comprises at least a bump pad 14; and at least a bump 17 over the bump pad.

FIG.8



Toyosawa does not teach a testing pad electrically connected to the bump pad. Nevertheless, Kim (e.g. fig. 3) shows a testing pad 23 electrically connected to a bump pad 22. This type of embodiment prevent decreases in testing reliability caused by damages on the surface of the bump and polluting material thereby enhancing its yield with respect to bonding (col. 2/lis. 10-30).

FIG.3



It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a test pad electrically connected to the bump pad in order to prevent decreases in testing reliability caused by damages on the surface of the bump and polluting material during the testing process, thereby enhancing its yield with respect to bonding as taught by Kim

5. Regarding claim 4, Toyosawa teaches that post-passivation scheme comprises a composite structure comprising an adhesion/barrier layer 13 and a copper layer 14 formed on top of the adhesion/barrier layer (col. 6/lis. 20-56).

6. Regarding claim 5, Toyosawa teaches that the adhesion/barrier is made of titanium-tungsten alloy (col. 7/lis. 3-4).

#### ***Allowable Subject Matter***

7. Claims 2-3, 6-11, 13, 15-21, 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 27-45 are allowed.

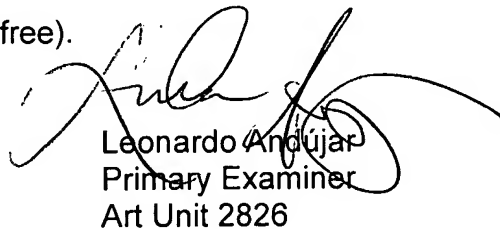
#### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonardo Andújar whose telephone number is 571-272-1912. The examiner can normally be reached on Mon through Thu from 9:00 AM to 7:30 PM EST.

Art Unit: 2826

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Leonardo Andujar  
Primary Examiner  
Art Unit 2826